AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently Amended) In a disk drive control system comprising a micro-controller, a micro-controller cache system having a plurality of line-cache segments grouped into at least one line-cache segment-group, and a buffer manager communicating with the micro-controller cache system and a remote memory, a method for reducing the micro-controller access time to information stored in the remote memory via the buffer manager, the method comprising:
    receiving in the micro-controller cache system a current data-request from the micro-controller; and
    if the current requested data resides in a first line-cache segment of a first segment-group:
        providing the current requested data to the micro-controller if the current requested data resides in a first line-cache segment of a first segment-group; and
        automatically filling a second line-cache segment of the first segment-group with data retrieved from the remote memory wherein the retrieved data is sequential in the remote memory to the provided current requested data if the second line-cache segment hosted a most-recently requested data prior to the current requested data.

2.   (Canceled)

3.   (Currently Amended) The method of claim 21, wherein the automatically filling further comprises:
    filling the second line-cache segment if the current requested data is sequential to the most-recently requested data.

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4.   (Original) The method of claim 1, wherein the retrieved data comprises a burst of data in the range of 32 to 64 bytes.

5.   (Original) The method of claim 1, wherein the plurality of line-cache segments are grouped into a plurality of line-cache segment-groups.

6.   (Currently Amended) The method of claim 5, further comprising:

    if the current requested data does not reside in the plurality of line-cache segment-groups:

        selecting a line-cache segment-group if the current requested data does not reside in the plurality of line-cache segment-groups;

        filling a first line-cache segment of the selected line-cache segment-group with a first set of data from the remote memory location wherein the first set of data comprises the current requested data;

        providing the current requested data to the micro-controller from the filled first line-cache segment; and

        filling a second line-cache segment of the selected line-cache segment-group with a second set of data from the remote memory location wherein the second set of data is sequential in the remote memory to the first set of data.

7.   (Original) The method of claim 6, wherein the selected line-cache segment-group is a least recently used line-cache segment-group.

8.   (Original) The method of claim 6, wherein the first set of data comprises a first burst of data in the range of 32 to 64 bytes.

9.   (Original) The method of claim 6, wherein the second set of data comprises a second burst of data in the range of 32 to 64 bytes.

10.   (Original) The method of claim 1, wherein the line-cache segment-group
comprises two line-cache segments.

11.   (Original) The method of claim 1, wherein the remote memory comprises a
dynamic random access memory (DRAM).

12.   (Original) The method of claim 1, wherein the buffer manager is in
communication with a plurality of control system clients and provides client-requested
data to the clients from the remote memory.

13.   (Original) The method of claim 12, wherein the plurality of control system clients
comprises at least one of a disk subsystem, an error correction code subsystem, and a
host interface subsystem.

14.   (Currently Amended) A disk drive control system comprising:
        a micro-controller,
        a micro-controller cache system having a plurality of line-cache segments
grouped into at least one line-cache segment-group, and
        a buffer manager communicating with the micro-controller cache system and a
remote memory, ~~the disk-drive control system comprising:~~
        wherein the micro-controller cache system is adapted to: a) receive a current
data-request from the micro-controller, and, if the current requested data resides in a
first line-cache segment of a first segment-group, b) provide the current requested data
to the micro-controller ~~if the current requested data resides in a first line-cache segment
of a first segment-group~~, and c) automatically fill a second line-cache segment of the
first segment-group with data retrieved from the remote memory wherein the retrieved
data is sequential in the remote memory to the provided current requested data if the
second line-cache segment hosted a most-recently requested data prior to the current
requested data.

15. (Canceled)

16. (Currently Amended) The disk drive control system of claim ~~15~~14, wherein the micro-controller cache system automatically fills the second line-cache segment if the current requested data is sequential to the most-recently requested data.

17. (Original) The disk drive control system of claim 14, wherein the plurality of line-cache segments are grouped into a plurality of line-cache segment-groups.

18. (Currently Amended) The disk drive control system of claim 17, wherein the micro-controller cache system is further adapted to, if the current requested data does not reside in the plurality of line-cache segment-groups, a) select a line-cache segment-group ~~if the current requested data does not reside in the plurality of line-cache segment-groups~~; b) fill a first line-cache segment of the selected line-cache segment-group with a first set of data from the remote memory location wherein the first set of data comprises the current requested data; c) provide the current requested data to the micro-controller from the filled first line-cache segment; and d) fill a second line-cache segment of the selected line-cache segment-group with a second set of data from the remote memory location wherein the second set of data is sequential in the remote memory to the first set of data.

19. (Original) The disk drive control system of claim 18, wherein the selected line-cache segment-group is a least recently used line-cache segment-group.

20. (Canceled)